the necessity of allowing the development of the gas industry to proceed, without any check on its natural progress."

Such was the Committee's conclusion on the matter, but it was qualified by the suggestion "that the Departments concerned should carefully watch the situation so that, if the freedom from limitation which we recommend is accompanied by unexpectedly unfavourable results, the attention of Parliament may, if necessary, be again directed to the matter," as though the Committee had still some misgivings about its verdict and did not consider it as final. Certainly, in the light of statistics relating to accidental gas poisoning placed before the Committee by the Registrar-General's Department, and those published for the years 1914–19 by the Gas and Electric Light Commissioner of Massachusetts, which are referred to in the Report, there would appear to be a much greater risk of accidental death from carbon monoxide poisoning in localities where coal-gas largely diluted with water-gas is supplied than in those in which no water-gas is added. Indeed, it seems arguable that, had the matter been decided mainly by such statistics, and on the physiological evidence, rather than on those of the cheaper production of gas, a verdict in favour of limitation would have been the more natural and appropriate one.

There is admittedly much to be said on hygienic grounds in support of the argument for cheaper gas, especially in view of the great improvements made during recent years in gas fires, and their consequent wider adoption for the heating of living rooms which are in use for part of the day only. For such purposes, as well as for cooking, gas is still an economical fuel, not so much on grounds of its initial cheapness (for it is a relatively dear fuel as compared with coal), as on those of convenience and cleanliness. It may, however, be argued perhaps with even greater force that, for the ordinary living rooms of a house, which require to be heated all day long, there is probably nothing more healthy and economical than radiation from red hot semi-carbonised coke burning in an open fireplace, and that it is in such direction, rather than that of gas heating, that the ultimate solution of the domestic smoke nuisance mainly lies, although undoubtedly each method will contribute to the desired end.

The Committee does not appear to have considered at all the question of the greater risks of back-firing and explosions arising out of the much wider range of explosibility of coal-gas when largely diluted with water-gas for a domestic supply, although this is a matter of some importance. Moreover, it seems to have been overlooked that whereas the gas supply of many American cities may contain as much as 25 to 30 per cent. of carbon monoxide, yet it would be of a much higher calorific standard (*vide* that of New York) than any gas supplied, or likely to be supplied, under the new regulation by British undertakings. Indeed, it is a matter of mere arithmetic that an American burner supplied with gas of 675 B.Th.U. per cb. ft., and containing 27 per cent. of carbon monoxide, would, for a given heat development in the flame, actually pass somewhat less carbon monoxide in a given time than a British burner supplied with a 475 B.Th.U. gas containing only 20 per cent. of carbon monoxide. It may, however, be hoped that British gas undertakings will, in their own interests, voluntarily work within such a 20 per cent. limit, and that gas consumers generally will fully realise the importance of keeping a sharp look-out for gas leakages and of using only the best-made taps and fittings.

W. A. B.

Diseases of the Rubber Tree (Hevea braziliensis).

The Diseases and Pests of the Rubber Tree. By T. Petch. Pp. x+278+6 plates. (London: Macmillan and Co., Ltd., 1921.) 20*s.* net.

THE growth of the rubber plantation business, in which many millions sterling of British capital are invested, provides a striking example of the advantages that accrue from the combination of science and industry. It is, indeed, not too much to say that but for this combination the rubber planting industry, as it has flourished during the last ten years or more, could scarcely have maintained its existence.

It is not necessary to direct attention to the essential aid which science has given in enabling the raw rubber to be fitted for its various commercial applications. On the other hand, the present extensive development of rubber in industry would not have been possible had not scientific help been at hand to enable the plantations themselves to be maintained. In the earlier days, as in many another tropical agricultural industry, all went very well with the planter—and then came the inevitable onset of disease, which under tropical conditions of growth may, and if unchecked will, easily assume serious proportions. The first serious check in the history of the plantation enterprise came in the form of a root

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disease, due to the effects of a species of Fomes (*F. lignosus*). The life history of the disease was worked out, its source and the conditions of attack became known through scientific investigation, and then rational methods of control were devised.

Some optimists thought that thenceforth all serious trouble was at an end, but experience has confirmed the views of those who at that time expressed a contrary opinion. There are now known to be a number of pests, mostly fungal, which threaten more or less dangerously the existence of the rubber trees. It is not unlikely that others will appear in the future, which either have not yet gained access to the plantations or perhaps have not yet acquired their full virulence. At any rate it may be stated confidently that the maintenance of scientific investigation, which alone can provide the essential conditions for the control of disease, is a prudent measure that is of vital importance to the existence of the whole industry.

It is fortunate that the men who control largely the development of the great rubber plantations appreciate fully the services which science can render, and actually has rendered in the past, and this circumstance is one of the best guarantees of the future success of the enterprise.

Naturally, a considerable mass of knowledge has accumulated on the causes and methods of treatment of the various diseases to which the rubber trees are known to be liable, and it is fortunate that Dr. Petch, with his long experience in Ceylon, should have set himself the task of presenting, in a readily available form, the results of that experience in the book under notice. By the term "tree" is meant, of course, the Para rubber tree, *Hevea braziliensis,* which from the planter's point of view is the only rubber-producing plant of importance. Dr. Petch discusses the subject partly from the general point of view, and shows how neglect of correct principles of cultivation may promote disaster. He then describes the characters presented by the various parasites, and their several effects on the rubber tree itself, indicating, or at least discussing, the remedial or preventive measures which should be adopted. Excellent plates are given in the body of the work illustrative of the various diseases, and we could have wished it had been possible to print an explanatory legend at the foot of each plate, to avoid having to turn elsewhere in the text for identification of the figures; perhaps this may be possible in a future edition.

The book is much more than a mere guide to the pests, animal and vegetable, that afflict Hevea. Its pages abound in acute observations and suggestions that make it valuable from the point of view of general pathology, and render it of interest to a wider circle of readers than the rubber planters for whom it was primarily written. The author also hints at the preparation of a companion volume that shall deal with the subject from a more physiological point of view. The need for such a work is pressing, for quite apart from the more general aspects of pathology which may be expected to fall within the scope of such a volume, the whole question of the function of the complex latex and the problems of predisposition to disease have never yet received adequate treatment. For the present we conclude by congratulating the author on the production of a real contribution to the literature of economic botany, and the publishers also deserve commendation for the excellent form in which the subject-matter and the illustrations are presented to the reader.

J. B. F.

Some Psychological "As Ifs."

(1) *Psychology and Mystical Experience.* By Prof. John Howley. Pp. xi + 275. (London: Kegan Paul, Trench, Trubner and Co., Ltd.; St. Louis, Mo.: B. Herder Book Company, 1920.) 10*s.* 6*d.* net.

(2) *The Science of Ourselves. (A Sequel to the "Descent of Man.")* By Sir Bampfylde Fuller. (Oxford Medical Publications.) Pp. ix + 326 + 2 plates. (London: Henry Frowde; Hodder and Stoughton, 1921.) 16*s.* net.

(3) *Religion and the New Psychology.* By W. S. Swisher. Pp. xv + 261. (London: George Routledge and Sons, Ltd., n.d.) 10*s.* 6*d.* net.

(4) *Collected Papers on the Psychology of Phantasy.* By Dr. Constance E. Long. Pp. xii + 216. (London: Baillière, Tindall, and Cox, 1920.) 10*s.* 6*d.* net.

(1) PROF. HOWLEY'S study is a sound piece of work written by one who has knowledge and training along lines of thought which we cannot afford lightly to dismiss. Without denying the validity of the concept of sub-consciousness (in some sense of the word) he rejects that of merely automatic combination of psychic elements therein. "We must," he says, "posit some agency other than the psychic elements considered in themselves." Mystic experience is a direct realisation, *sine intermedio,* by the agent of the Agent beyond. What the author speaks of as "agnostic psychology" may try to interpret this in terms of illusion; but how comes it that the illusion conduces to useful and sustained effort?

(2) Sir Bampfylde Fuller builds a super-

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